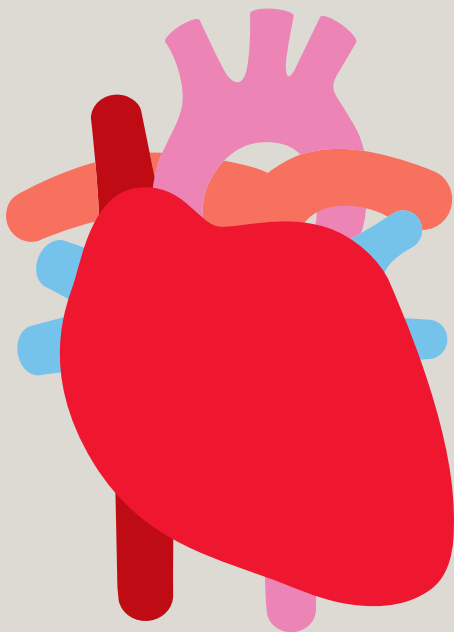


Understanding your child's heart

Supraventricular tachycardia

14



**FIGHT
FOR EVERY
HEARTBEAT**

bhf.org.uk

About this book

If you're reading this book, you've probably just had some very upsetting news, and have lots of questions running through your mind.

We've written this book to help answer some of those questions. We'll go through:

- what supraventricular tachycardia is and how it is diagnosed
- how supraventricular tachycardia is treated
- the benefits and risks of treatments
- what happens as your child grows up
- where to go for more support.

Please be aware that this booklet shouldn't replace the advice your doctors or nurses may give you. But it should help make what they tell you that little bit clearer.

Contents

What is a congenital heart condition?	2
What causes a congenital heart condition?	3
What is supraventricular tachycardia ?	4
What causes supraventricular tachycardia?	6
How is supraventricular tachycardia diagnosed?	8
How is supraventricular tachycardia treated?	9
Electrical cardioversion treatment	12
Radiofrequency ablation treatment	14
What happens as my child grows up?	16
What is the risk of having another child with a congenital heart condition?	17
Coping with everyday life	18
The medical terms and what they mean	19
References & acknowledgements	20

What is a congenital heart condition?

It's an abnormality of the heart that developed in the womb. Sometimes, a **congenital** heart condition is diagnosed when the baby is still developing in the womb, but most times it's not discovered until after the baby is born. There are lots of different types of **congenital** heart conditions.

Each day 12 babies are diagnosed with a **congenital** heart defect in the UK. We continue to support research to improve the understanding, diagnosis and treatment of **congenital** heart conditions. For more information into our pioneering research visit **bhf.org.uk/research**

What causes a congenital heart condition?

In most cases, it's caused by something going wrong during the very early stages of the pregnancy.

At the moment we don't fully understand why a baby's heart doesn't develop normally. But sometimes a congenital heart condition can be part of a syndrome which the baby is born with. *(A syndrome is a group of symptoms that commonly appear together as part of a condition).*

What is supraventricular tachycardia?

Supraventricular tachycardia (SVT) is an abnormality of the heart's rhythm, when the heart suddenly beats much faster than normal. Some children feel very well but others feel the affect more severely. Episodes of SVT often only last for a short time (*a few minutes*) and mostly should not be a cause for concern.

SVT in babies

If an episode of SVT goes on for a long time your baby's heart muscle may get tired, which means their heart won't pump as efficiently. This can make your baby look pale or breathless, and make it hard for them to feed. If your baby has long episodes of SVT, medication can be used to control their heart rhythm. For most babies SVT goes away by the time they are 1 year old.

SVT in older children

Older children will usually be aware that their heart is beating faster than normal. If an episode of SVT doesn't last long your child may have no symptoms other than being aware of their fast heartbeat. But if it goes on for a long time it may make them feel weak, breathless or light headed. It might also make their chest ache, or make them feel nauseous or vomit.

What causes supraventricular tachycardia?

The heart has an electrical system which controls heart rate. SVT is caused by a fault in this system.

In a normal heart:

- A group of special heart cells - the sinus node - acts as the heart's natural **pacemaker**.
- The **sinus node** sits in the top right chamber of the heart (*the right atrium*) and lets out a tiny pulse of electricity to tell the heart when to beat.
- When the impulse reaches the centre of the heart, it travels along to the main pumping chambers of the heart (*the ventricles*) to make them beat.

Most children with SVT have an extra piece of heart tissue which allows the electrical impulse to “short circuit” and travel back up to the top of the heart to start its journey over again.

When the electrical impulse travels round and round, the heart suddenly beats too fast.

Some children with SVT have an extra group of heart cells which act like a **pacemaker** but which let out too many electrical impulses, causing the heart to beat too fast.

Wolff-Parkinson-White syndrome (or WPW)

If your child has WPW the electrical activity of the 'short circuit' may be visible on an **electrocardiogram (ECG)** test even when your child's heart rhythm is normal. This is called pre-excitation.

What causes each episode of SVT?

Most of the time there is no obvious reason what has triggered a particular episode of SVT.

How is supraventricular tachycardia diagnosed?

Usually the only test that is needed to make the diagnosis is an **electrocardiogram** (*ECG*), a test that records the rhythm and electrical activity of your child's heart.

- Small sticky patches called electrodes will be put onto your child's arms, legs and chest.
- These are connected to an ECG recording machine which picks up the electrical signals that make their heart beat.

The test will only take a few minutes and won't hurt your child at all.

How is supraventricular tachycardia treated?

If your child's episodes of SVT are short and not frequent enough to make them feel unwell, they won't need to have any treatment. But if an episode does make them unwell the SVT can, in nearly every time, be stopped either by medicines or by giving the heart a small electric shock (*known as an electrical cardioversion*).

Self-treatment for older children

Older children can sometimes stop an episode themselves by doing one of the following things:

Valsalva manoeuvre

They should take a deep breath in, shut their mouth tight, hold their nose tightly and blow out hard as though trying to make themselves go red in the face. Blowing up a balloon or trying to blow open a syringe has the same effect.

Diving reflex

Fill a washing-up bowl full of cold water, and add some ice if you have some. Ask your child to hold their breath and put their whole face under the cold water for few seconds.

Vomit reflex

Ask your child to put their finger down their throat as if they were trying to make themselves sick.

Headstand

Get your child to stand on their head – but only if an adult is around to help them to do it safely.

These all work by swallowing reflexes that naturally slow down the heart. This can be powerful enough to stop SVT.

Medicines

If SVT is frequent and causing distressing symptoms it's possible for your child to take regular medicines to try to control it. There are many different types of medicine available, so they may have to try several before they find the best one for them.

Although medicines will not get rid of the 'short-circuit' in their heart, they can make it less of a problem.

Electrical cardioversion treatment

A treatment called electrical **cardioversion** can help to stop SVT by giving the heart a small electric shock.

- Your child will be given a short-acting general anaesthetic or heavy sedation.
- A doctor or nurse will put defibrillator pads on their chest.
- The pads will be connected to a defibrillator machine.
- Your child will be given up to 3 controlled electric shocks to their chest.

The whole procedure usually lasts about 10 minutes, and complications with this treatment are rare. It's important to be aware that **cardioversion** doesn't always restore normal heart rhythm. Sometimes it's successful to start with, but then your child's abnormal heart rhythm could come back several days, weeks or even months later. If this happens, your doctor may want to repeat the treatment or they may consider another type of treatment for your child.

Radiofrequency ablation treatment

If SVT is still a problem in teenagers or adults it may be possible to cure it permanently by getting rid of the short circuit with a treatment called radiofrequency ablation.

- Your child will be given a local anaesthetic and sedation.
- Thin tubes called catheters will be inserted into the veins at the top of their leg or arm.
- The catheters will be guided to their heart, where they are used to pinpoint exactly where the unwanted electrical impulses are coming from.
- The end of one of the catheters will be heated and used to destroy the abnormal area of heart tissue.
- The catheters will be removed.

Occasionally, the treatment is needed more than once.

The good news is, the risk of complications with this treatment is relatively low. However if the unwanted electrical impulses are coming from an area near the heart's normal electrical pathways, there is a small risk that this treatment may damage the normal electrical pathways. If this happens your child may need to have a permanent **pacemaker** inserted.

Your child's **cardiologist** will talk you through all the risks in detail before the treatment.

What happens as my child grows up?

Most children with SVT will remain completely well and lead a normal, active life after treatment. There is no need to restrict your child's physical activity and no special precautions are necessary.

As your child grows up, they might find that SVT can be made worse by caffeine (*in strong coffee and some soft drinks*), by excess alcohol, and by stimulants such as cannabis, ecstasy and other soft drugs.



For more information and support about growing up with a heart condition, visit **bhf.org.uk/heart-health/children-and-young-people**

What is the risk of having another child with a congenital heart condition?

If you have one child with a **congenital** heart condition, there is around a 1 in 40 chance that if you have another child, they will have a heart condition too.¹ However, this risk may be higher (*or lower*) depending on the type of **congenital** heart condition your child has. Because your risk of having another child with congenital heart condition is higher than it is for other people, your doctor may offer you a special scan at an early stage in future pregnancies, to look at the baby's heart.

Do ask your midwife or GP for more information on having a scan earlier than usual. Do be aware that if you have more than one child with **congenital** heart condition, the specific condition may not always be the same.

Coping with everyday life

For information on the topics below, please visit **bhf.org.uk/congenital**

- Financial issues
- Low-income benefits
- Disability benefits
- Carer's Allowance
- Fares for visiting your child in hospital

The medical terms and what they mean

Aorta The main artery of the heart. It supplies oxygen-rich blood to the body.

Atrium One of the two upper chambers of the heart.

Cardiologist A consultant specialising in heart disease.

Cardioversion A treatment to help return an abnormal heartbeat to its normal rhythm.

Congenital From birth.

ECG See electrocardiogram.

Electrocardiogram A recording of the electrical activity of the heart. Also called an ECG.

Pacemaker A small electrical device used to treat some abnormal heart rhythms.

Pulmonary To do with the lungs.

Sinus node A special group of heart cells that sends electrical signals to make the heart beat.

Ventricle One of the two lower chambers of the heart.

References

1. Gill HR, Splitt M, Sharland GK, Simpson JM. 2003. *Patterns of recurrence of congenital heart disease: An analysis of 6,640 consecutive pregnancies evaluated by detailed fetal echocardiography.* Journal of the American College of Cardiology; 42: 923-9.

Acknowledgements

The British Heart Foundation would like to thank all the healthcare professionals involved in the updating of these booklets. Particular thanks are due to:

- Dr James Gnanapragasam, Consultant Paediatric Cardiologist, Southampton General Hospital
- Dr Aaron Bell, Consultant Paediatric Cardiologist, Evelina Children's Hospital

For more information and support about children and young people with a heart condition, visit [**bhf.org.uk/heart-health/children-and-young-people**](https://bhf.org.uk/heart-health/children-and-young-people)



**British Heart
Foundation**

For over 50 years we've pioneered research that's transformed the lives of millions of people living with cardiovascular disease. Our work has been central to the discoveries of vital treatments that are changing the fight against heart disease.

But cardiovascular disease still kills around one in four people in the UK, stealing them away from their families and loved ones.

From babies born with life threatening heart problems, to the many mums, dads and grandparents who survive a heart attack and endure the daily battles of heart failure.

Join our fight for every heartbeat in the UK. Every pound raised, minute of your time and donation to our shops will help make a difference to people's lives.

Text FIGHT to 70080 to donate £3

**FIGHT
FOR EVERY
HEARTBEAT**

bhf.org.uk

This is a charity donation service for the BHF. Texts cost £3 + 1 standard rate msg. The BHF will receive 100% of your donation to fund our life saving research. To opt out of calls and SMS text NOCOMMS BHF to 70060, or if you have any questions about your gift call 02032827862.

© British Heart Foundation 2016, a registered charity in England and Wales (225971) and Scotland (SC039426).

C14/0916